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ENGINEERING EVALUATION/FACT SHEET

B ACKGROUND INFORMATION

Application No.:	R13-2053B
Plant ID No.:	107-00074
Applicant:	Camden-Clark Memorial Hospital Corporation
Facility Name:	Camden-Clark Medical Center- Memorial Campus
Location:	Parkersburg
NAICS Code:	622110
Application Type:	Modification
Received Date:	October 16, 2012
Engineer Assigned:	Edward S. Andrews, P.E.
Fee Amount:	$1000.00
Date Received:	October 19, 2012
Complete Date:	December 12, 2012
Due Date:	March 12, 2013
Applicant Ad Date:	October 20, 2012
Newspaper:	*The Parkersburg News and Sentinel*
UTM's:	Easting: 451 km Northing: 4,346 km Zone: 17
Description:	The application is for the installation of a new natural gas boiler rated at 21 MMBtu/hr with a configuration to burn fuel oil as a back-up fuel.

DESCRIPTION OF PROCESS

Camden-Clark Memorial Hospital Corporation operates (Camden-Clark) the Memorial Campus in Parkersburg, WV. To support their medical treatment operations at the Memorial Campus, Camden-Clark operates two 12.6 MMBtu/hr natural gas fired boilers with several smaller units (under 10 MMBtu/hr) as back-up units to these 12.6 MMBtu/hr units. Camden-Clark has elected to install an additional 21 MMBtu/hr boiler to provide steam for the Memorial Campus.

This unit is a 21 MMBtu/hr natural gas fired unit with an burner system configured to use fuel oil as a back-up fuel source in the event the natural gas supply to the facility is interrupted or

there is a natural gas curtailment. This new boiler is replacing a 500 bhp boiler identified as Old Boiler #3.

SITE INSPECTION

The Camden-Clark Medical Center - Memorial Campus is an existing non-major Title V Facility (i.e. deferred Title V source) and is targeted for periodic compliance inspections. The last full on site compliance inspection was conducted by Mr. John Moneypenny, an inspector assigned the Compliance and Enforcement Section on March 12, 2010. Mr. Moneypenny determined that the facility operating in compliance.

This proposed change is nearly a like for like replacement of a natural gas fired boiler. The writer determined that an actual site inspection is not necessary for this permitting action.

ESTIMATE OF EMISSION BY REVIEWING ENGINEER

The applicant supplied emissions estimates from the manufacturer to estimate emissions from the new boiler. The writer believes that the manufacturer did not correct the flow rate to standard temperature for carbon monoxide, oxides of nitrogen, and sulfur dioxide. These rates were corrected using procedures outlined in Method 19. The emissions listed in the following table are manufacturer's estimates:

Table #1 – Potential Emissions from the New Boiler

Pollutant	Hourly Rate (lb/hr)	Annual Rate (TPY)	Hourly Rate on #2 Fuel Oil (lb/hr)	Annual Rate on #2 Fuel Oil (TPY)
Particulate Matter (PM) /Particulate Matter Less Than 10 microns (PM_{10})/Particulate Matter less than 2.5 microns ($PM_{2.5}$)	0.17	0.73	0.19	0.82
Sulfur Dioxide (SO_2)	0.03	0.13	1.12	4.91
Oxides of Nitrogen (NO_x)	1.75	7.65	2.53	11.10
Carbon Monoxide (CO)	0.66	2.91	0.70	3.07
Volatile Organic Compounds (VOCs)	0.12	0.51	0.045	0.19
Total Hazardous Air Pollutants (HAPs)	0.04	0.11	6.24E-3	0.03
Carbon Dioxide Equivalent (CO_2e)	2,401	10,554	3,461	15,158

Based on information in the R13-2053A Permit Application File, the following table represents the facility's potential to emit before and after this proposed modification:

Table #2 – Summary of Potential to Emit Changes		
Pollutant	**Annual Potential Before (TPY)**	**Worst Cass New Potential (TPY)**
Particulate Matter (PM) /Particulate Matter Less Than 10 microns (PM_{10})/Particulate Matter less than 2.5 microns ($PM_{2.5}$)	2.6	3.42
Sulfur Dioxide (SO_2)	55.78	60.69
Oxides of Nitrogen (NO_x)	15.72	26.82
Carbon Monoxide (CO)	9.24	12.31
Volatile Organic Compounds (VOCs)	0.6	1.11
Carbon Dioxide Equivalent (CO_2e)	12,063	27,221

REGULATORY APPLICABLILITY

It is understood that these sources burning natural gas are significantly below the applicable allowable limitations in Rule 2 and Rule 10, which are the State of West Virginia's rules addressing particulate matter (PM) and sulfur dioxide (SO_2) from boilers, regardless of the size of the unit. This understanding is confirmed with the provisions in Rules 2A and 10A, which exempts such sources for conducting periodic testing and monitoring for the purpose of demonstrating compliance with the limitations under these rules.

The applicant proposes to use #2 Fuel Oil (diesel fuel) as a back-up fuel source when there is an interruption of the hospital's natural gas supply or a natural gas curtailment. The applicable SO_2 standards for the source are 67.2 pounds per hour under Rule 10 and 10.5 pounds per hour under Subpart Dc of 40 CFR 60. Even under this situation, the unit is burning 0.05% sulfur diesel which meets the applicable alternative SO_2 standard under Subpart Dc of 40 CFR 60 by 10 fold and the Rule 10 allowable by nearly 98%.

The other two existing 12.6 MMBtu/hr Boilers are subject to the SO_2 emission standard of Subpart Dc (40 CFR §60.42c(d)). The standard allows for compliance to be demonstrated using distillate oil with sulfur content not greater than 0.5 % weight sulfur. Further, the subpart

allows compliance to be demonstrated by using a certified fuel supplier that meets the certification described under 40 CFR §60.42c(h)(1). Camden-Clark has to continue obtaining the proper records from its diesel fuel supplier to comply with this rule.

Camden-Clark prepared and submitted a complete application, paid the filing fee, and published a Class I Legal ad in *The Parkersburg News and Sentinel* on October 20, 2012. This proposed modification does not trigger any additional rule or regulations.

The Memorial Campus is a non-major source as defined in 45 CSR 14 and 45 CSR 30 (i.e. Potential to emit more than 100 tons per year of CO, PM_{10}, PM, and SO_2). This new boiler does not have the potential to emit of any one of the New Source Review Pollutants above the significance levels as defined in Rule 14. Therefore, no New Source Review is required to be conducted for this project. In addition, this modification will not increase the facility potential to emit to major source level as defined in Rule 30. Thus, the Memorial Campus will remain as a non-major source subject to 45 CSR 30 as a "deferred source", which means the facility will continue to submit "Certified Emission Statements" (CES) and pay annual fees in accordance with the rule.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

This new boiler will not emit any pollutants that aren't already being emitted by another emission source at the facility. Therefore, no information about the toxicity of the hazardous air pollutants (HAPs) is presented in this evaluation.

AIR QUALITY IMPACT ANALYSIS

The writer deemed that an air dispersion modeling study or analysis was not necessary, because the proposed modification does not meet the definition of a major source as defined in 45CSR14.

MONITORING OF OPERATIONS

The writer recommends the following monitoring requirements:

- Facility total fuel usage (natural gas & diesel) for each month. This is required by Rule 2, 10, and Subpart Dc.
- Maintain records from the "certified fuel supplier" that each shipment of diesel meets the definition of distillate oil and the maximum sulfur content not exceeds 0.05 % sulfur by weight.
- Hour of operation of the unit using/firing diesel fuel and reason for usage. Natural gas boilers with fuel oil back-up that do not operate more than 48 hours per year for

maintenance or readiness checks using fuel oil are not affected sources to the 40 CFR 63, Subpart Sources

CHANGES TO PERMIT R13-2053A

Permit R13-2053A is for the two existing identical 12.6 MMBtu/hr natural gas fired, with diesel fuel back-up, boilers. The permit has emissions limits for each boiler. In addition, there are annual fuel usage restrictions for each unit on each type of fuel.

The writer recommends the following changes:

Table 3 Changes to Permit R13-2053B

Condition No. or Rule Citation No. in R13-2053A	Type of Limit	Replacement Condition No.	Remarks
A.1.	Hourly Steam and heat input limit #1 & #2 Boilers	Omitted condition and noted heat input on Table 1.0.	Heat Input limit is indirectly established in 4.1.2.a. using natural gas usage limit.
A.2.	Gas Limit for #1 & #2 Boilers	Convert into 4.1.2.a	Adjusted the limit based on Heat Value of Natural Gas of 1,020 Btu/standard cudic foot of natural gas
A.3.	Diesel Limit for #1 & #2 Boilers	Omitted limit and restrict the use of diesel fuel for natural gas supply interruptions and 48 hours per year for checks of the liquid delivery system.	See 4.1.1.a.
A.4.	Sulfur Limit for the diesel fuel	Transferred into 4.1.1b.	Limited to 500 ppm equates to 0.05% sulfur limit
A.5.	Emission Limits for #1 & #2 Boilers	Omitted the PM, SO_2, SO_3, & VOC limits. Incorporated the CO and NO_x hourly limits into 4.1.2.b.	DAQ Policy doesn't require limits for natural gas sources under 60 MMBtu/hr. The new sulfur content and usage

			diesel restriction of 4.1.1. limits the SO_2 potential well below the set limits in A.5.
A.6.	Requirement to record Fuel Usage for #1 Boiler	Incorporated into 4.2.1.	
A.7.	Requirement to record Fuel Usage for #2 Boiler	Incorporated into 4.2.1.	
A.8.	Operation limit for the old backup boilers	Incorporated into 4.1.4.	
A.9.	Requirement to record operation of backup boilers	Incorporated into 4.2.4.	
A.10.	Annual Compliance is determine on 12 month tolling total	Incorporated directly into the conditions that set annual limits	
45 CSR §§2-3.1 & 3.2	Opacity Limit and test methods	Created 4.1.1.c. & d.; 4.2.2.	Requires visible emissions checks according to policy when firing diesel continuously for 30 days.
45CSR §§2-4.2-4.1.	Allowable PM rate	Incorporated as 4.1.1c. and uses 4.1.1a., which restricts to natural gas except during curtailment or gas supply shortages.	Natural gas sources are not required to monitor visible or test for PM emissions (understood to meet the standards) 45 CSR 2-8.4.b.
45 CSR §2-4.4	Allows for the inject of sulfur oxides to improving PM removal to meet the allowable	Omitted	Not Applicable (No PM Device used and no evidence of the Director approving a such a request in the file)
45 CSR §2-8.3c.	Fuel consumption Records	Incorporated into as 4.2.1.	
45 CSR §2-9.2.	Operating/Maintaining the unit using good air pollution practices	Incorporated into as standard condition as 4.1.5.	
45 CSR §§10-3.1. & 3.1.e	Establishes the SO_2 allowable rate	4.1.1.b. limit the sulfur in the diesel to 500 ppm	This 500 ppm limits SO_2 emission from the unit to less than 1% of this allowable

45 CSR §10-3.4a.	Alternative SO_2 limit for different type sources through a common stack	Omitted	Not appropriate for this facility
45 CSR §10-4.1	SO_2 concentration limit for manufacturing sources	Omitted	The sources located at the facility are only fuel burning unit and limits are established in §10-3 for fuel burning units.
45 CSR §10-5.1.	Hydrogen Sulfide limit for refinery process gas streams	Omitted	Not applicable for fuel burning units
45 CSR §10-8.2.a.	Director may request the use of SO_2 or H_2S monitors for compliance	Omitted	45 CSR §10A-6.1.c.1. requires the use of continuous monitors if the unit burns a fuel that equates to 90% or greater of the Rule 10 Allowable. These sources are less than 1% of the allowable. Not required by rule.
B.5.	Required compliance test for SO_2 limit in accordance with 40 CFR §60.44c.	Omitted and requires compliance with certified fuel supplier requirements in 4.4.4. which is the requirements of 40 CFR §60.48c(f)(1)	Source compliance with percent sulfur limit by certified fuel supplier in accordance with 40 CFR §60.48c(f), which is allowed in 40 CFR §60.44c(h)
B.6.	Requires SO_2 CEMS in accordance with 40 CFR §44c	Omitted	Source is subject to percent sulfur limit and compliance is being demonstrated with the certified fuel supplier.
B.7.	Alternative to SO_2 CEMS by means of fuel sampling	Omitted	Demonstrating compliance with certified fuel supplier.
B.8.	Alternative to fuel sampling	Requirement established in 4.4.4.	

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates the proposed modification of the facility will meet all the requirements of the applicable rules and regulations when operated in accordance with the permit application. Therefore, the writer recommends granting Camden-Clark Memorial Hospital Corporation a Rule 13 modification permit for their Memorial Campus medical treatment facility located in Parkersburg, WV.

Edward S. Andrews, P.E.
Engineer

March 5, 2013
Date